Luke Keltner, Ph.D.

Cleveland, Ohio 44102

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(937) 304-9533

Web Developer, Theoretical Physicist, and Teacher with a chronic condition of never knowing enough. Interested in a challenging full-time web development position. Proficient in developing sophisticated websites from intuitive front-end user experiences to backend database implementation, storage, and use.

Technical Skills

HTML5, CSS3, Javascript, JQuery, Bootstrap, Angular JS, Firebase, Ionic Mobile Framework, Node Js, MySQL, MongoDB, Express, Handlebars JS, AES Password Encryption, c3.js, Java, Python - including pandas and scikit-learn for Data Science, along with High Energy General Relativity, Quantum Field Theory, and Analytical Mathematics. Efficient in both team and individual settings.

Projects

Riddle Game **2017**

- A fun riddle based trivia game. Users are given a riddle at random that is of the same level as the user's level. Once enough riddles at a level are answered, the user levels up and obtains harder riddles. A user never sees a riddle they have gotten correct a second time.
- MySQL database includes three tables: users, riddles, and a lookup table that holds which users have gotten which riddles correct.
- Technologies implemented include Node/Express/Express Handlebars, aes-js for password encryption, validator for double front-end and back-end user input validation, mysql.
- Worked in team of three
- http://riddlegame.herokuapp.com
- https://github.com/riddle-dudes/riddle-project

Spinal Surgery Complication Predictor **2017**

- Web app that lets doctors input patient information and predicts outcome of patients having complications after spinal surgery.
- Implements random forest algorithms using Python's scikit-learn and 2007-2014 hospital medical data for accurate predictions.
- Designed for Cleveland Medical Hackathon (https://clevelandmedicalhackathon.com/)
- Worked in team of three
- https://github.com/Medical-Hackathon/project

Tom Keltner Sings the Classics **2017**

- A standard website created from scratch to promote Tom Keltner's singing biography. Includes searchable table of songs by either title, composer/lyricist, genre, and/or year.
- Technologies implemented include: Node/Express, fs-extra, song list JSON and photo JSON for easy data updates, Bootstrap for mobile friendly use
- https://tomkeltner.herokuapp.com/
- https://github.com/LukeKeltner/tomkeltner-repo

API-Fun **2017**

- Web app which includes gif searches with search history and number of results to show, a movie search library which dynamically creates graph comparing IMDB scores for movies users search, and a Map and Weather app where users find a location on the globe and provides latitude, longitude, area along with current weather, temperature, humidity, and wind speed.
- APIs: giphy, omdb, Mapbox, and openweathermap. Libraries: JQUERY, bootstrap, and c3.js
- https://github.com/LukeKeltner/API-Fun

More Projects - https://github.com/LukeKeltner

Education

Certificate in Full Stack Web Development - 28 Weeks, 756 hours of coding …… **July 2017 - present**
Case Western Reserve University Coding Bootcamp **-** *Cleveland, Ohio* Expected Graduation - January 2018

Ph.D. in Theoretical Physics …… **2010 - 2015**
Case Western Reserve University **-** *Cleveland, Ohio* GPA 4.0/4.0

Bachelors of Science in Physics
Minor in Mathematics …… **2006 - 2010**
Miami University - *Oxford, Ohio* GPA 3.67/4.0

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Professional Experience

Hawken School - *Cleveland, Ohio - Top 5 best private high school in Ohio - niche.com* **2015-present**

- Excels in a fast paced team environment: stays on schedule, compromises lessons with colleagues, open to trying innovative ideas and techniques, always wanting to learn from others and teach others best practices
- Courses Created and Taught: Honors Modern and Computational Physics (Python and Java) and Cosmology
- Additional Courses Taught: AP Calculus, Honors Precalculus, Physics (with Python), and Scientific Research I-III
- Head STEMM Instructor and program developer
- Conducting research to determine females' attitudes in physics depending on age including Java based p-value simulations to combat small sample sizes

Case Western Reserve University - *Cleveland, Ohio* **2010-Summer 2016**

- Five years solving complex Theoretical Physics problems in areas of Quantum Gravity and Non-perturbative quantum correlation functions.
- Physics Lecture at CWRU to undergraduates - https://www.youtube.com/watch?v=MFUuaeSjzYY&t=550s
- Taught undergraduate physics lectures at CWRU's Student Medical and Dental Education Program
- Taught over 500 undergraduate physics students in lectures and Logger Pro based physics labs
- Presented research at the 22nd Midwestern Relativity Meeting at University of Chicago
- Gave thirteen lectures to the *Center for Education and Research in Cosmology and Astrophysics* and *CWRU's Theoretical Physics Collaboration*
- Co-Founder and Social Committee Chair of CWRU's first graduate and professional student LGBTQ+ organization - QGrad

Research and Publications

- **Dissertation:** *Nonperturbative Techniques connecting Quantum Gravity Field Theories to General Relativity*
    - **Keltner, L**. (2015). *UV Properties of Galileons*. (Electronic Thesis or Dissertation). Retrieved from https://etd.ohiolink.edu/
- C. de Rham, **L. Keltner**, and A. J. Tolley, *Generalized Galileon Duality, Phys.Rev.* **D90** (2014) 024050, [arXiv:1403.3690], [doi:10.1103/PhysRevD.90.024050]
- **L. Keltner**, and A.J. Tolley, UV Properties of Galileons: Spectral Densities [arXiv:1502.05706]
- **Undergrad Senior Capstone:** *Analytical Quantum Gravity* - Calculated quantum energy states of the simple harmonic oscillator and their dependences on a Minimum Length Heisenberg Uncertainty Principle caused by General Relativistic effects

References

- **Michael G. Mendez -** Senior open stack systems developer and educator
    - michaelgmendez@gmail.com
    - 716-952-9228
- **Justin Lyon -** Senior Technical Consultant I - Acumen Solutions
    - jml6487@gmail.com
    - 440-506-6189
- **Dustin Hershman-** Full Stack Software Developer - Dealer Tire
    - dustinh17@gmail.com
    - 440-922-6672

Other Information

Awards: Undergraduate Researcher of the Year Award, Dean Scholarship